

**POINTABLE OPTICAL TRANSCEIVERS FOR FREE SPACE OPTICAL
COMMUNICATION**

Abstract

5 Optical transceivers include a diffractive optical element (DOE) attached to a
surface of a prism or other optical support. The DOE is configured to direct an input
optical signal to a planar or curved reflective surface, or receive an output optical signal
from the planar or curved reflective surface at angles greater than a critical angle in the
prism. In some examples, the optical support includes one or more curved reflective
10 surfaces and the DOE is a hologram. Such optical transceivers include a reflective
surface that is rotatable with respect to the DOE, or with respect to a selected
communication direction and the DOE for selection of a transmission or reception
direction. The optical supports of such optical transceivers can be mounted to a
window, and include a reflective region configured to total internally reflect optical
15 signals. Selection of a communication direction is based on a rotation of the rotatable
reflective surface.